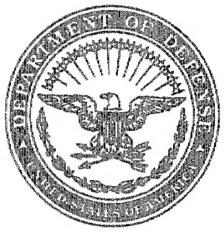
AFCTN Test Report 93-055

AFCTB-ID 92-033



Technical Publication Transfer

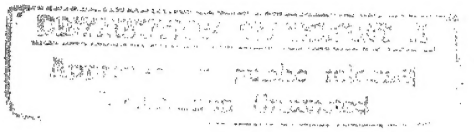
Using:

Industrial Data Link's Data

MIL-R-28002A (Raster)

Quick Short Test Report

12 June 1992



Prepared for

Electronic Systems Center

AFCTN Test Report
93-055

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MIL-R-28002A (Raster)

Quick Short Test Report

12 June 1992

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Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Industrial Data Link's interpretation and use of the CALS Standards in transferring Raster data. Industrial Data Link used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 92-033

Date of Evaluation: 12 June 1992

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/ENCP
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
Industrial Data Link Corporation
William Largent
10060 Willow Creek Road
San Diego CA 92131

Data Description: Raster Transfer Test
2 Document Declaration files
3 Raster files

Data Source System:

Raster

HARDWARE
Unknown
SOFTWARE
Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)
SUN 3/280
AFCTN *Tapetool v1.2.8 UNIX*
XSoft *CAPS/CALS v40.4*
Cheetah Gold 486
USLynx *1840A Tape Handler*
AFCTN *Tapetool v1.2.8 DOS*

MIL-R-28002 (Raster)
SUN 3/60
AFCTN *Raster Tools*

Standards Tested:
MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape was hand delivered to the Air Force CALS Test Bed (AFCTB). The tape was not enclosed in a box in accordance with ASTM D 3951. The exterior of the envelope was not marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was not enclosed in a barrier bag or barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files that were recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.8* utility. No errors were encountered while evaluating the contents of the tape labels.

3.2.2 Declaration and Header Fields

No errors were reported during the evaluation of the Document Declaration file headers.

The tape consisted of two Document Declaration files with three Raster files. Fifteen errors and 12 notes were reported during the evaluation of the three Raster file header records. All of the errors were the same for each file.

The first reported error was the use of "W" in the txtfilid record. "W" is used when the Raster file is part of a text file.

Because there were no text files in the document, this should be reported as "NONE" indicating that the file is product data per MIL-STD-1840A, para 5.1.4.4.

```
txtfilid: W
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Invalid 'txtfilid:' value for
    product data.  Expected => NONE
*** NOTE - The header record will be given the value NONE.
*** NOTE - Correction made in new Raster Header File.
```

The next reported error was with the record "rorient." MIL-R-28002A, para. 3.1.1.2 requires that the value for the line progression be either 90 or 270. This value is used by the receiving system to determine the orientation of the image.

```
rorient: 000,000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rorient:'.
    Expected progression direction => 90 or 270.
*** NOTE - The header record will be given the value 000,270.
*** NOTE - Correction made in new Raster Header File.
```

The next reported error is the "rpelcnt" record. This record must contain the value for the pixel count per line and the number of lines in the image. This information is used by the receiving system to determine the size of the image during decompression.

```
rpelcnt: 000000,000000
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected pel path pels to be an integer greater than zero.
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected progression lines to be an integer greater than zero.
```

The last reported error relates to the "rdensty" record. This record must contain one of the values defined in MIL-R-28002A, para. 3.1.1.2.

```
rdensty: 0000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rdensty:'.
    Expected image density => 200, 240, 300, 400, 600, or 1200.
```

It was also noted that only the CALS header files were on the tape. When *Tapetool* reads a tape, it strips the header from the data file and generates two files. When the file sizes were checked, only the header data was present with the data file size being zero. It appears that the merge function was not completed during the writing of the tape.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included on this tape.

6. Raster Analysis

The tape indicated it contained three Raster files; however, the Raster header records had critical errors which would make the data files unusable by receiving systems. Further, the data files were not written to the tape. The Raster header data was present but the actual data files were not written to the tape.

7. CGM Analysis

No Computer Graphics Metafile (CGM) files were included on this tape.

8. Conclusions and Recommendations

In summary, the physical structure of the tape from Industrial Data Link Corporation did not meet the CALS MIL-STD-1840A requirements.

The Raster header data was present but the actual data files were not written to the tape. The Raster files do not meet the CALS MIL-R-28002A specification.

This tape does not meet the CALS MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
CALS Test Network Catalog Evaluation - Version 1.2; Release Number 8

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 12 08:03:12 1992

MIL-STD-1840A File Catalog

File Set Directory: C:\TAPETOOL\SET004

                                                                    Page: 1

                                                Record
                                                Format/     Block      Selected/
File Name                 File Type             Length  Length/Total  Extracted
--------------------------------------------------------------------------- ---
D001                      Document Declaration  D/00260 02048/000001  Extracted
D002                      Document Declaration  D/00260 02048/000001  Extracted
D001R001                  Raster                F/00128 02048/000001  Extracted
D002R001                  Raster                F/00128 02048/000001  Extracted
D002R002                  Raster                F/00128 02048/000001  Extracted

Catalog Process terminated normally.
```

9.2 Tape Evaluation Log

```
CALS Test Network Tape Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Jun 12 08:02:43 1992

ANSI Tape Import Log

Rewinding tape to load point...

VOL1CALS01                                                          4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001              CALS0100010001000000 92149 00000 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260                                  00

  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

********** Tape Mark **********
```

```
  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001            CALS0100010001000000 92149 00000 000001

  Label Identifier: EOF1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2D0204800260                                    00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

HDR1D002            CALS0100010002000000 92149 00000 000000

  Label Identifier: HDR1
  File Identifier: D002
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2D0204800260                                    00
```

```
  Label Identifier: HDR2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D002            CALS0100010002000000 92149 00000 000001

  Label Identifier: EOF1
  File Identifier: D002
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0002
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2D0204800260                                    00

  Label Identifier: EOF2
  Recording Format: D
  Block Length: 02048
  Record Length: 00260
  Offset Length: 00

************ Tape Mark ***************

HDR1D001R001        CALS0100010003000000 92149 00000 000000

  Label Identifier: HDR1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0003
  Generation Number: 0000
  Generation Version Number: 00
```

```
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D001R001          CALS0100010003000000 92149 00000 000001

  Label Identifier: EOF1
  File Identifier: D001R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0003
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

HDR1D002R001          CALS0100010004000000 92149 00000 000000
```

```
  Label Identifier: HDR1
  File Identifier: D002R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0004
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

********** Tape Mark **********

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

********** Tape Mark **********

EOF1D002R001         CALS0100010004000000 92149 00000 000001

  Label Identifier: EOF1
  File Identifier: D002R001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0004
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
```

```
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

HDR1D002R002          CALS0100010005000000 92149 00000 000000

  Label Identifier: HDR1
  File Identifier: D002R002
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0005
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

HDR2F0204800128                                    00

  Label Identifier: HDR2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************

  Actual Block Size Found = 2048 Bytes.

  Number of data blocks read = 1.

************ Tape Mark ***************

EOF1D002R002          CALS0100010005000000 92149 00000 000001

  Label Identifier: EOF1
  File Identifier: D002R002
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0005
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  92149
```

```
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000001
  Implementation Identifier:

EOF2F0204800128                                    00

  Label Identifier: EOF2
  Recording Format: F
  Block Length: 02048
  Record Length: 00128
  Offset Length: 00

************ Tape Mark ***************.

************ Tape Mark ***************

############ End of Volume CALS01 ##############

############ End Of Tape File Set ##############

Rewinding tape to load point...

Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
CALS Test Network File Set Evaluation - Version 1.2; Release Number 8
  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    MIL-R-28002 (1989) - Raster Graphics Representation In Binary
                         Format, Requirements For

Fri Jun 12 08:03:12 1992

MIL-STD-1840A File Set Evaluation Log

File Set: SET004

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Industrial Data Link Corporation
srcdocid: fake1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19920526
dstsys: Wright_Pat
dstdocid: fake2
dstrelid: NONE
dtetrn: 19920528
dlvacc: NONE
filcnt: R1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Technical Publication
docttl: NONE


Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: fake1
dstdocid: fake2
txtfilid: W
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Invalid 'txtfilid:' value for
    product data.  Expected => NONE
*** NOTE - The header record will be given the value NONE.
*** NOTE - Correction made in new Raster Header File.
figid: NONE
```

```
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rorient:'.
    Expected progression direction => 90 or 270.
*** NOTE - The header record will be given the value 000,270.
*** NOTE - Correction made in new Raster Header File.
rpelcnt: 000000,000000
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected pel path pels to be an integer greater than zero.
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected progression lines to be an integer greater than zero.
rdensty: 0000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rdensty:'.
    Expected image density => 200, 240, 300, 400, 600, or 1200.
notes: NONE

5 error(s), 0 warning(s), and 4 note(s) were encountered
 in Raster File D001R001.
Saving Raster Header File: D001R001.HDR
Saving Raster Data File: D001R001.GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

A total of 5 error(s), 0 warning(s), and 4 note(s) were
encountered in Document D001.

Found file: D002
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: Industrial Data Link Corporation
srcdocid: fake1
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19920528
dstsys: Wright_Pat
dstdocid: fake2
dstrelid: NONE
dtetrn: 19920528
dlvacc: NONE
```

```
filcnt: R2
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Mechnical Drawing
docttl: NONE


Found file: D002R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: fake1
dstdocid: fake2
txtfilid: W
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Invalid 'txtfilid:' value for
    product data.  Expected => NONE
*** NOTE - The header record will be given the value NONE.
*** NOTE - Correction made in new Raster Header File.
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rorient:'.
    Expected progression direction => 90 or 270.
*** NOTE - The header record will be given the value 000,270.
*** NOTE - Correction made in new Raster Header File.
rpelcnt: 000000,000000
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected pel path pels to be an integer greater than zero.
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected progression lines to be an integer greater than zero.
rdensty: 0000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rdensty:'.
    Expected image density => 200, 240, 300, 400, 600, or 1200.
notes: NONE

5 error(s), 0 warning(s), and 4 note(s) were encountered
 in Raster File D002R001.
Saving Raster Header File: D002R001.HDR
Saving Raster Data File: D002R001.GR4

Found file: D002R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: fake1
dstdocid: fake2
```

```
txtfilid: W
*** ERROR (MIL-STD-1840A; 5.1.4.4) - Invalid 'txtfilid:' value for
    product data.  Expected => NONE
*** NOTE - The header record will be given the value NONE.
*** NOTE - Correction made in new Raster Header File.
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 000,000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rorient:'.
    Expected progression direction => 90 or 270.
*** NOTE - The header record will be given the value 000,270.
*** NOTE - Correction made in new Raster Header File.
rpelcnt: 000000,000000
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected pel path pels to be an integer greater than zero.
*** ERROR (MIL-R-28002; 3.1.1.3) - Invalid value for 'rpelcnt:'.
    Expected progression lines to be an integer greater than zero.
rdensty: 0000
*** ERROR (MIL-R-28002; 3.1.1.2) - Invalid value for 'rdensty:'.
    Expected image density => 200, 240, 300, 400, 600, or 1200.
notes: NONE

5 error(s), 0 warning(s), and 4 note(s) were encountered
 in Raster File D002R002.
Saving Raster Header File: D002R002.HDR
Saving Raster Data File: D002R002.GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

A total of 10 error(s), 0 warning(s), and 8 note(s) were
encountered in Document D002.

A grand total of 15 error(s), 0 warning(s), and 12 note(s) were
encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```